



### Abstract of the Disclosure

The present invention provides a new method for the synthesis of a novel kind of high-surface-area structures. A substrate is provided having pores or channels functionalized with an agent capable of binding nanoparticles, said pores or channels having a cross-sectional size of from about several nanometers to about 100 microns. A colloid solution comprising stabilized nanoparticles and a solvent is passed through said substrate, so as to bind and form more than one layer of nanoparticles in the pores or channels, where the bound nanoparticles spontaneously coalesce to form a coherent material having a substantially hollow structure and being composed of nanoparticles, where said structure follows the shape of said pores or channels in the substrate. The structures properties can be modified by deposition of another material, to form structures coated by the other material on their surface. The structures (with or without modification) can be separated from the porous substrate to obtain a material having a desired structure, for example a tubular structure.